

70 (C10 aminoT's)74 (C6 amino T's)

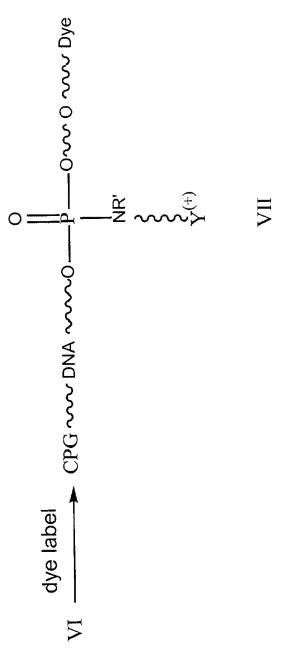
75

activator

CPGVV DNAVV OH

III
$$\xrightarrow{\text{NHR'}}$$
 $\xrightarrow{\text{CPG}}$ $\xrightarrow{\text{DNA}}$ $\xrightarrow{\text{Dye}}$ $\xrightarrow{\text{O}}$ $\xrightarrow{\text{NR'}}$ $\xrightarrow{\text{V}}$ $\xrightarrow{\text{V}}$ $\xrightarrow{\text{V}}$ $\xrightarrow{\text{V}}$ $\xrightarrow{\text{V}}$ $\xrightarrow{\text{V}}$ $\xrightarrow{\text{CPG}}$ $\xrightarrow{\text{DNA}}$ $\xrightarrow{\text{O}}$ $\xrightarrow{\text{V}}$ $\xrightarrow{\text{V}}$ $\xrightarrow{\text{V}}$ $\xrightarrow{\text{V}}$ $\xrightarrow{\text{CPG}}$ $\xrightarrow{\text{DNA}}$ $\xrightarrow{\text{O}}$ $\xrightarrow{\text{DNA}}$ $\xrightarrow{\text{O}}$ $\xrightarrow{\text{NR'}}$ $\xrightarrow{\text{VI}}$ $\xrightarrow{\text{V}}$ $\xrightarrow{\text{V}$

 $Y^{(+)}$ = organic group capable to introduce positive charge



R', R", R3 = H, alkyl, aryl

CPG~ DNA~ OH

II

CPG~ DNA~ O-
$$\stackrel{\downarrow}{P}$$
 - O~ Dye

NH2~ Y⁽⁺⁾

CPG~ DNA~ O- $\stackrel{\downarrow}{P}$ - O~ Dye

NR'

VII

VII

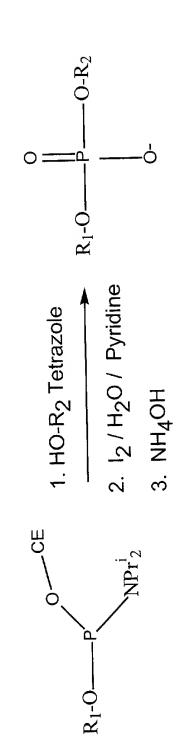
VII

3'
$$\left[dN-o_P - o\right]_{m}^{O}$$
 invasive $\left[dN-o_P - o\right]_{m}^{O}$ + HO-dN-COM

3'-DNA-5'
$$\sim$$
 Cy₃ \sim P — O — Z — OH NH NH NH V-(Hex) $Z = C_6H_{12}$ V-(dT) $Z = dT$ V-(dC) $Z = dC$ NMe₂ V-(dA) $Z = dG$

$$R_1$$
-O- R_2
 R_1 -O- R_2
 R_1 -O- R_2
 R_1 -O- R_2

chiral phosphoramidate phosphorus atom

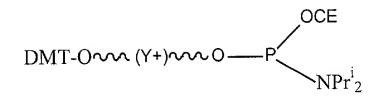


Phosophodiester Linkage

CE = Cyanoethyl

Phosphoramidite

Α.



B.

D.
$$(0)$$
 (-1) (+1) (0) (-1) (PCP)_(n+1) - (NP)_m

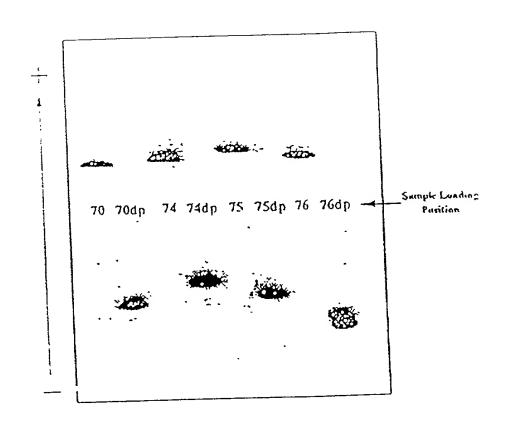
Neutral Phosphoramidite

Net Charge: 0

Positively Charged Phosphoramidite

Net Charge: +1

$$OH \sim Cy3 \sim O \cdot P \cdot O \sim N = O$$

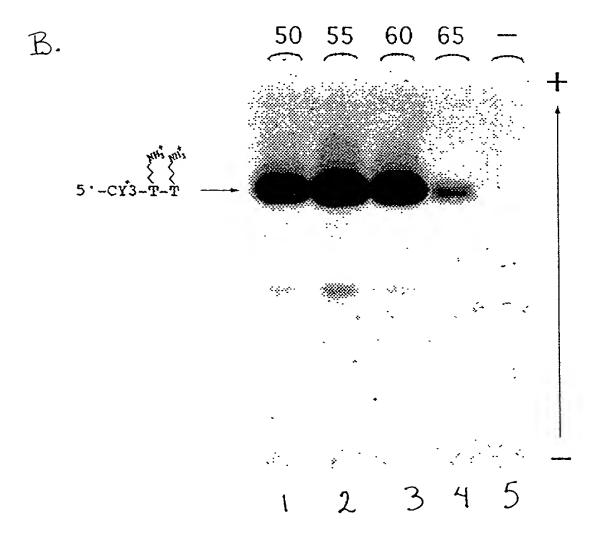


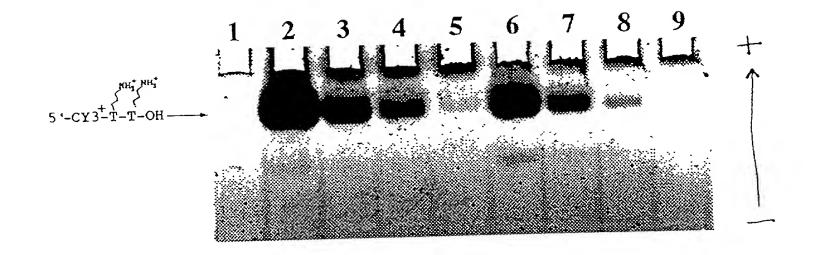
A.

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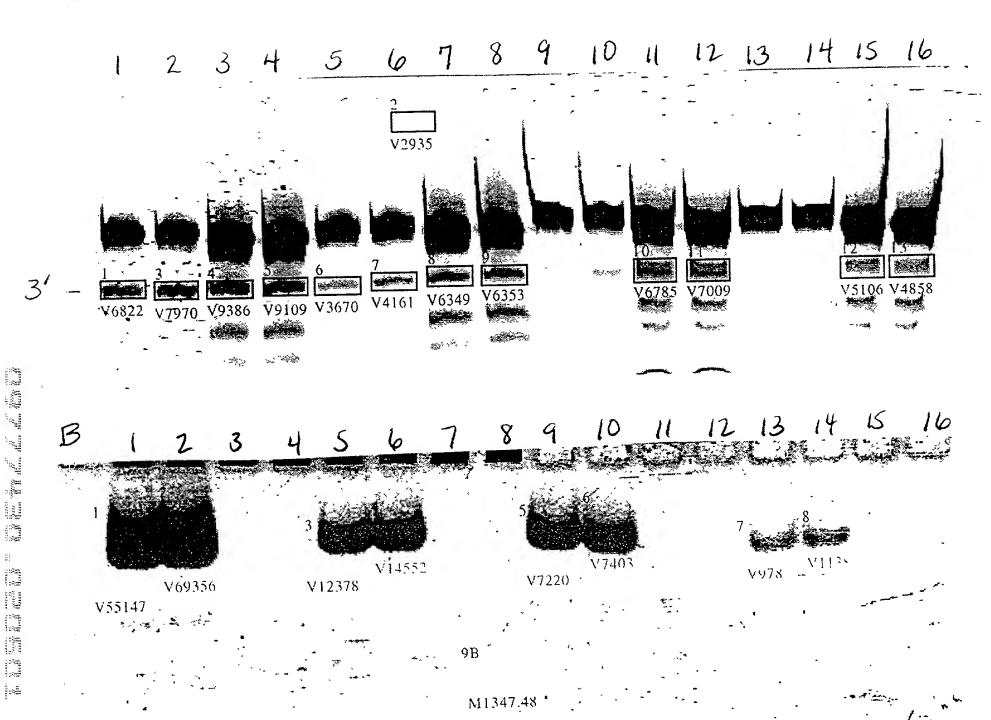
Cleavage Site

TATTGGGCGCCAGGGTGGTTTTT

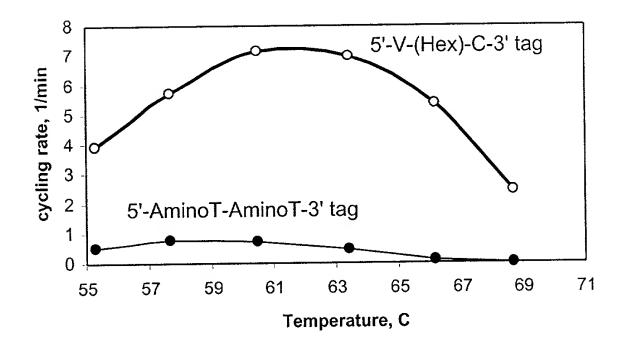




A



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A.

5'-HP1+ CTTCGGAGTTTGGG-NH₂-3'

5'-GGGTTGTGGAGTGAGTGTTCAAGTA-3'

3'-CCCAACACCUCACUCACAAGUUCAGAAGCCUCAAACCCAAACGAA-5'

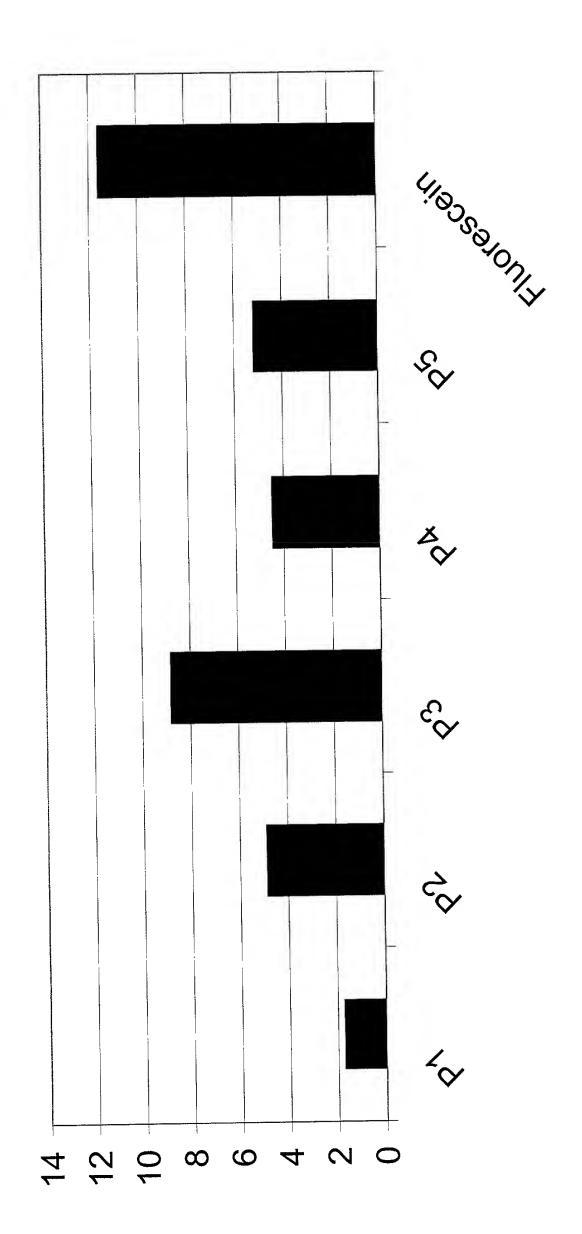
FIGURE 24A

Ш	01	•••
	L	
	1.0	
	0	4
	10	••
	L	
	1.0	
	0	
O	01	-
	1	•
	1.0	•
	10	
В	01	2 :
	١.0	
	0	
⋖	٥١	*
	L	***
	1.0	
	0	

FIGURE 24B

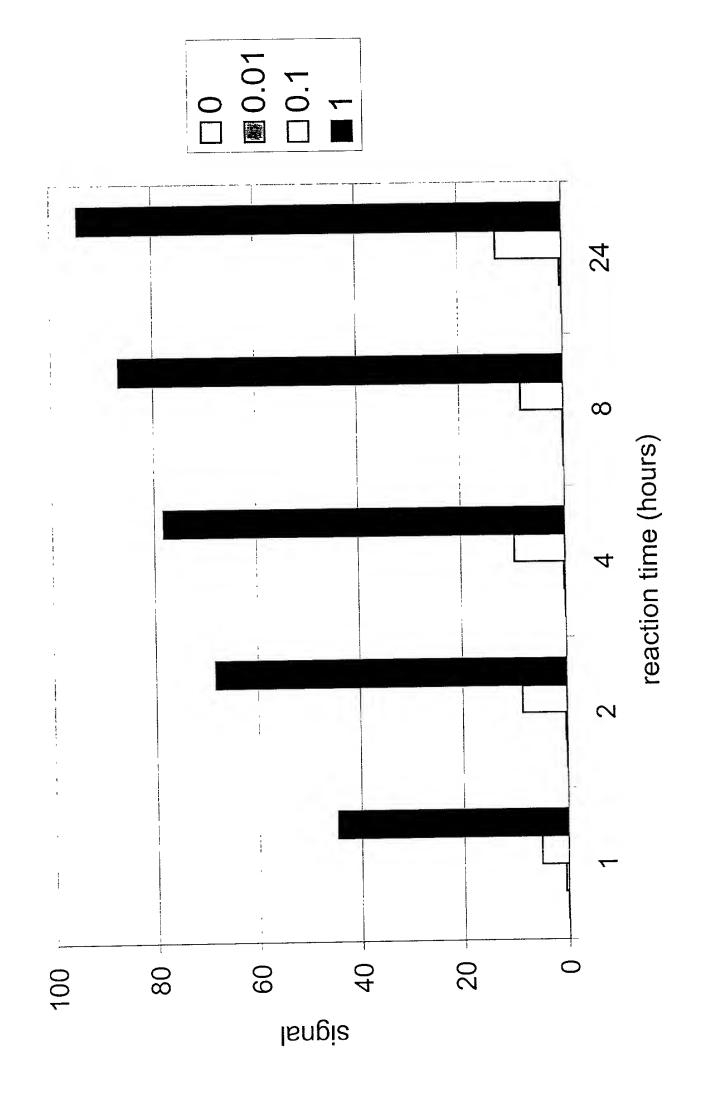
Ш	0 1.0 1	
_	0 1.0 1	
O	0 1.0 1 01	
В	0 1.0 1	
⋖	0 1.0 1 01	

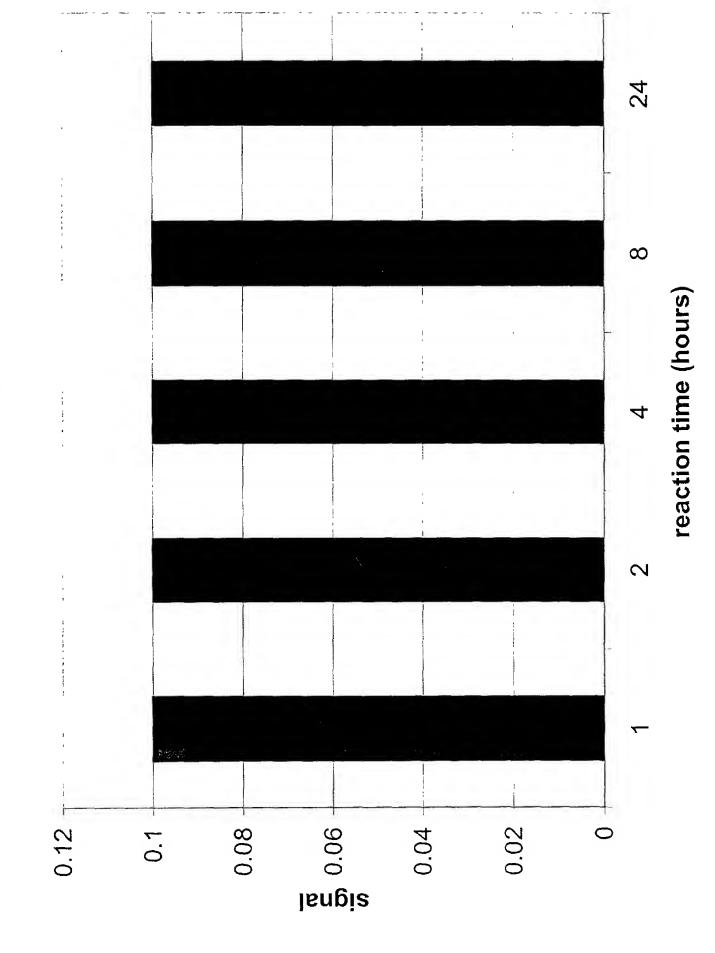
FIGURE 25



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FIGURE 26A





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FIGURE 27

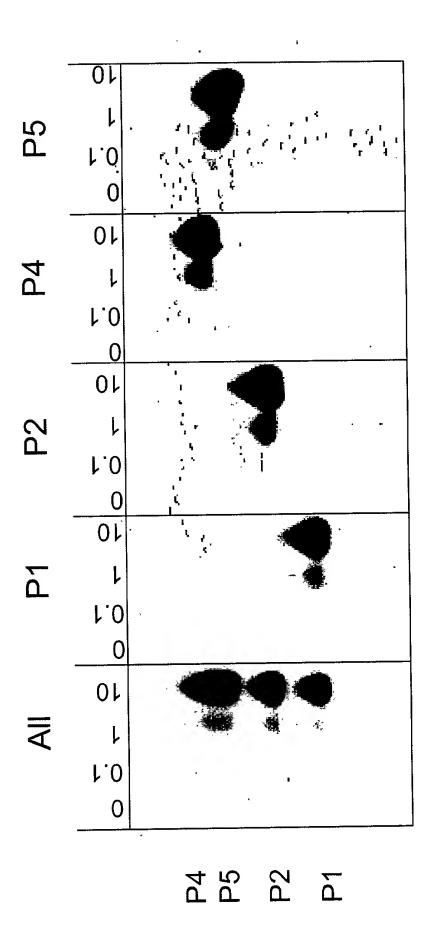


FIGURE 28A

Primary reaction

5,
CCGTCACGCCTCTTCGGAGTTTGGG-NH₂-3'
5'-GGGTTGTGGAGTGTTCAAGTA-3'
3'-CCCAACACCUCACUCACAAGUUCAGAAGCCUCAAACGAA-5'

Human MCP-1 mRNA

5'-CCGTCACGCCTCCTTCGGAGTTTGGG-NH₂-3'
3'-NH₂₋GTGCGGAGGAAGCCTCAAACCCAA-5'

Secondary reaction

5'-V(dC)+ CTCATTCTCAGTGCG-3' 5'-CCGTCACGCCTCC 3'-NH₂-UGGCAGTGCGGAGGAGTAAGAGT**G**ACGCG-5'

FIGURE 28B

Primary reaction

5. AACGAGGCGCACCTTTACATTTTCTATCGT-NH2-3'

5'-CCTTCCTTATCCTGGATCTTGGCA-3'

3'-GGAAGGAATAGGACCTAGAACCGGAAATGTAAAAGATAGCATAGGC-5'

Human Ubiquitin mRNA

5'-AACGAGGCGCACCTTTACATTTTCTATCGT-NH $_2$ -3'

 $3'-NH_2-CGCGTGGAAATGTAAAAGATAGCA-5'$

Secondary reaction

 $V(dQ)^{+}$.CTTGCTTCCTCC-3

5'AACGAGGCGCACC 3 ' -NH $_2$ -AAUUGCTCCGCGTGGTGAACGAAGAAGCC - 5 '

S FIGURE 29 Ω ř ⋖ ubiquitin MCP1

FIGURE 30A

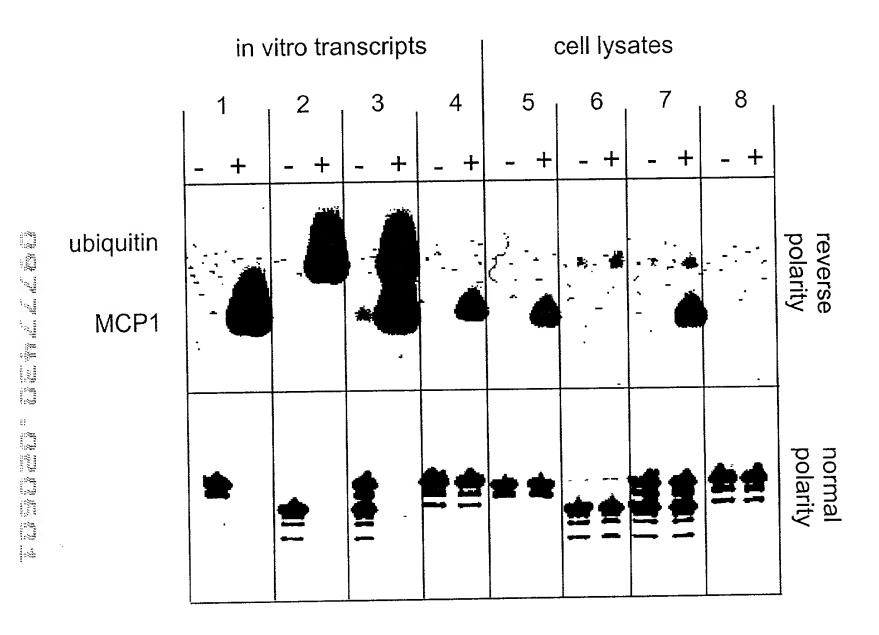
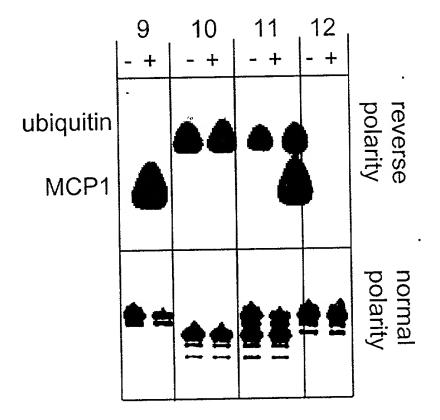
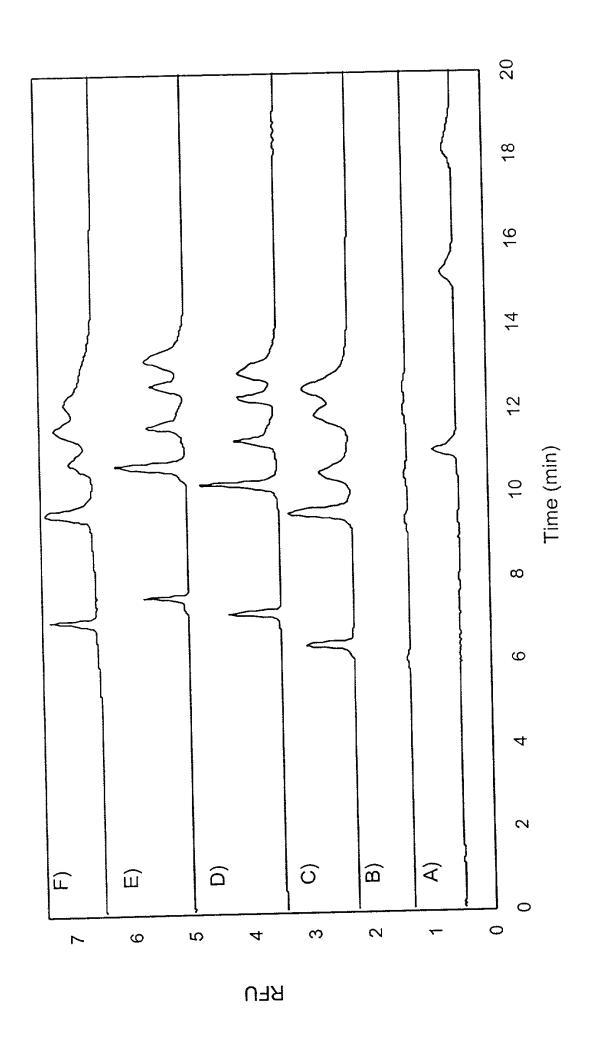
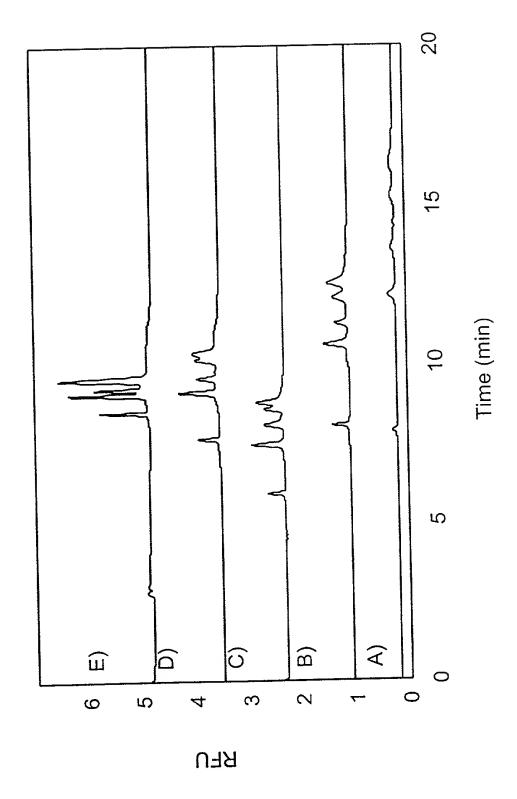


FIGURE 30B







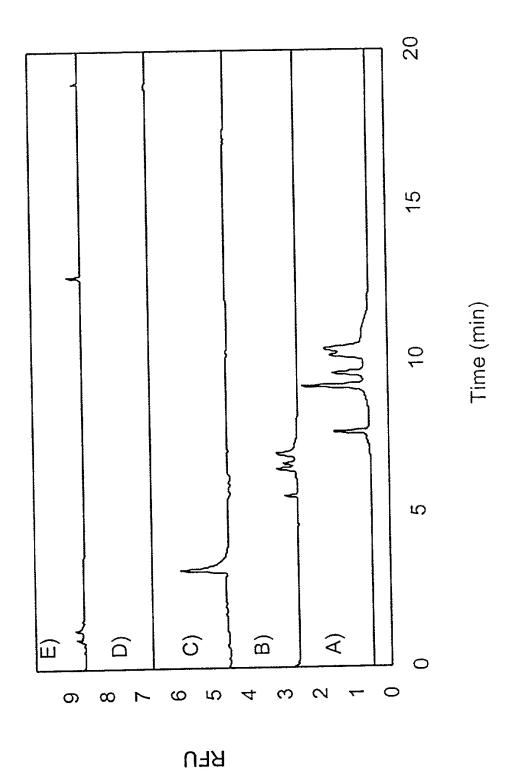


FIGURE 34

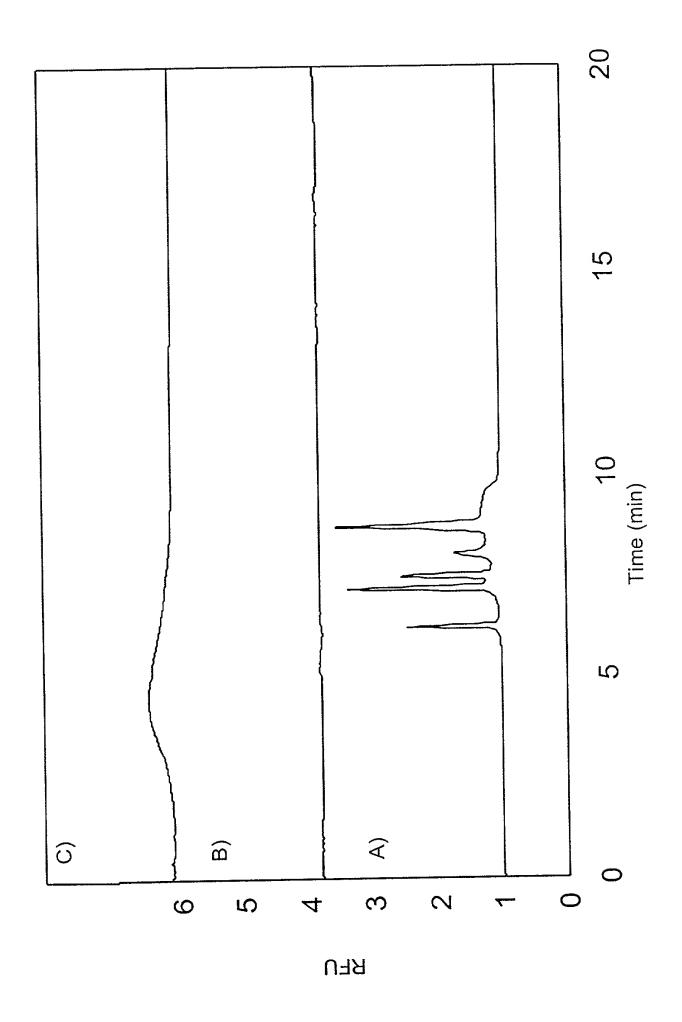


FIGURE 35

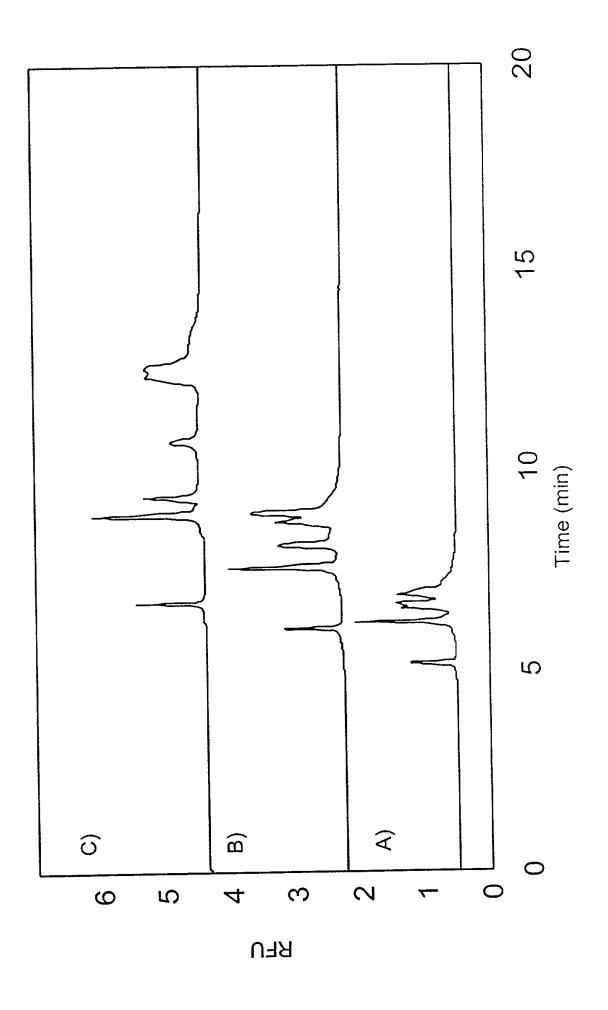
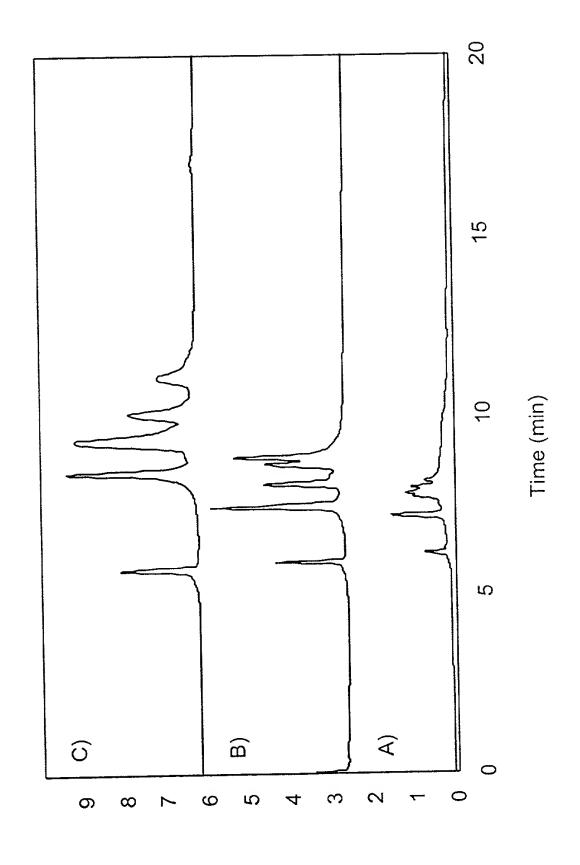


FIGURE 36



RFU